COMPLETE LIST OF CLAIMS:

1. (Original) A microfluidic structure, comprising:

(a) a first body which has a first planar surface that contains at least one recessed area to define a least one microfluidic channel, wherein the first planar surface has a surface roughness or less than 0.5 μm; and

(b) a second body which has a second planar surface which is a sensing surface, wherein said first surface and said second surface are in contact;

(c) whereby at least one microfluidic sensor channel is formed.

2. (Original) The structure of claim 1, wherein either the first body or the second body contains at least one pair of inlet/outlet holes to allow for a sample to enter and exit said at least one microfludic channel and contact said sensing surface.

3. (Original) The structure of claim 1, wherein the contact of said first surface and said second surface of (c) of claim 1 is reversible

4. (Original) The structure of claim 3, wherein the first body dimensions hold to a tolerance of ± 1 μm for repeated sealing where the applied load is 200 to 5000 psi.

5. (Original) The structure of claim 1, wherein the material of the body at the first surface has a hardness of at least D50 as measured by the Shore D method.

6. (Original) The structure of claim 1, wherein the body is made of carbon-filled PEEK at the first surface.

7. (Original) The structure of claim 1, wherein the first body material adsorbs less than 0.1% water when immersed for 24 hours at 25 degrees Celsius.

8. (Original) The structure of claim 1, wherein the first body material adsorbs at least 80% of light at incident angles from 50° to 80° when the light has a wavelength from 400 nm to 1100 nm.

9. (Original) The structure of claim 1, wherein the first body material in contact with a liquid phase leaches residues or particulates to a concentration less than $2pg/mm^2/min$.

10. (Original) The structure of claim 1, wherein there are three microfluidic channels with each channel roughly 300 μm wide, 5mm long, and 30 μm high.

11. (Original) The structure of claim 1, wherein there are a plurality of microfluidic channels.

12. (Cancelled)

13. (Original) A microfluidic sensor component, comprising:

(a) a body with a first planar surface that contains at least one recessed area to define at least one microfluidic channel, wherein the body at said first planar surface has a hardness of at least D50 as measured by Shore Durometer type D;

(b) whereby said first surface in contact with a second planar surface which is a sensing surface forms at least one microfluidic sensor channel.

14. (Original) The component of claim 13, wherein said first planer surface has a surface roughness of less than 0.5 μm rms..

15. (Original) The component of claim 13, wherein the body contains at least one pair of inlet/outlet holes to said at least one recessed area whereby a sample may enter and exit said at least one microfluidic channel and contact said sensing surface.